

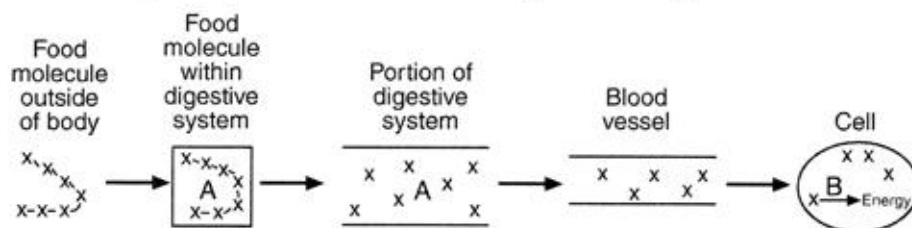
Name _____

Keystone Warm-ups Chapter 2: Chemistry of Life

Copy down all 4 answer choices for the daily warm-up from the board in the space below its question. Choose the best answer by circling its letter. Then, after we go over it, write the correct answer in the block provided on the front of the packet.

1		2		3		4		5	
6		7		8		9		10	
11		12							

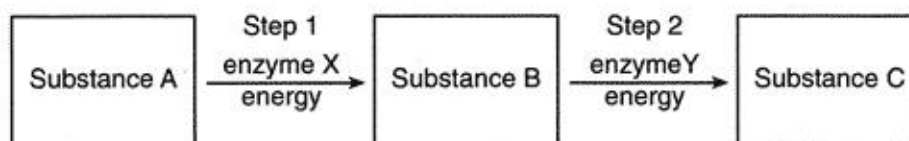
1. The diagram below represents events involved as energy is ultimately released from food.



Which row in the table below best represents the chain of Xs and letters A and B in the diagram?

	X-X-X-X-X-X-X	A and B
(A)	Nutrient	Antibodies
(B)	Nutrient	Enzymes
(C)	Hemoglobin	Wastes
(D)	Hemoglobin	Hormones

2. The diagram below represents the chemical pathway of a process in a human liver cell.



A particular liver cell is unable to make substance C. One possible explanation for the inability of this cell to make substance C is that

- (A) excess energy for step 2 prevented the conversion of substance B to substance C
- (B) an excess of enzyme X was present, resulting in a decrease in the production of substance B
- (C) nuclear DNA was altered resulting in the cell being unable to make enzyme Y
- (D) a mutation occurred causing a change in the ability of the cell to use substance C

3. The failure to regulate the pH of the blood can affect the activity of

- (A) enzymes that clot blood
- (B) red blood cells that make antibodies
- (C) chlorophyll that carries oxygen in the blood
- (D) DNA that controls starch digestion in the blood

4. In a class, each student made three models of the small intestine using three artificial membrane tubes. They filled each of the three tubes with equal amounts of water, starch, protein, and vitamin C. They added starch-digesting enzyme to tube 1. They added protein-digesting enzyme to tube 2. No enzyme was added to tube 3. The ends of the membrane tubes were sealed and the tubes were soaked for 24 hours in beakers of pure water. The beakers were numbered 1, 2, and 3, corresponding to the number of the tube they contained. At the end of the experiment, the students removed the tubes and tested the water in the beakers for the presence of nutrients.

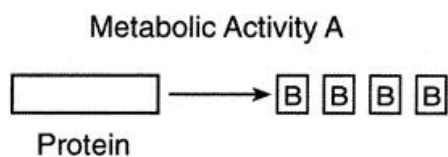
Sugar would most likely be present in the water in

- (A) beaker 1, only
- (B) beaker 2, only
- (C) beakers 1 and 3, only
- (D) beakers 1, 2, and 3

5. Which statement best describes an effect of the low density of frozen water in a lake?

- (A) When water freezes, it contracts, decreasing the water level in a lake.
- (B) Water in a lake freezes from the bottom up, killing most aquatic organisms.
- (C) When water in a lake freezes, it floats, providing insulation for organisms below.
- (D) Water removes thermal energy from the land around a lake, causing the lake to freeze.

6. The diagram below represents one metabolic activity of a human.



Letters A and B are best represented by which row in the chart?

	Metabolic Activity A	B
(A)	Respiration	Oxygen molecules
(B)	Reproduction	Hormone molecules
(C)	Excretion	Simple sugar molecules
(D)	Digestion	Amino acid molecules

7.

Use the diagram below to answer the question.

Chemical Reaction

$$\text{HO}-\textcircled{1}-\textcircled{2}-\textcircled{3}-\text{H} + \text{HO}-\textcircled{4}-\text{H}$$

↓

$$\text{HO}-\textcircled{1}-\textcircled{2}-\textcircled{3}-\textcircled{4}-\text{H} + \text{H}_2\text{O}$$

The diagram shows a reaction that forms a polymer from two monomers. What is this type of reaction called?

A. glycolysis
 B. hydrolysis
 C. photosynthesis
 D. dehydration synthesis

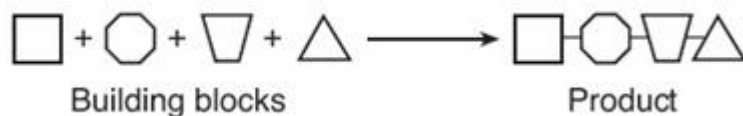
8. Which statement concerning simple sugars and amino acids is correct?

- (A) They are both wastes resulting from protein synthesis.
- (B) They are both building blocks of starch.
- (C) They are both needed for the synthesis of larger molecules.
- (D) They are both stored as fat molecules in the liver.

9. What functional characteristic of proteins distinguishes them from carbohydrates?

- (A) large amount of stored information
- (B) ability to catalyze biochemical reactions
- (C) efficient storage of usable chemical energy
- (D) tendency to make cell membranes hydrophobic

10. The diagram below represents the synthesis of a portion of a complex molecule in an organism.



Which row in the chart could be used to identify the building blocks and product in the diagram?

	Building Blocks	Product
(A)	starch molecules	glucose
(B)	amino acid molecules	part of protein
(C)	sugar molecules	ATP
(D)	DNA molecules	part of starch

11. Substance A is converted to Substance B in a metabolic reaction. Which statement best describes the role of an enzyme during this reaction?

- (A) It adjusts the pH of the reaction medium.
- (B) It provides energy to carry out the reaction.
- (C) It dissolves substance A in the reaction medium.
- (D) It speeds up the reaction without being consumed.

12. A scientist observes that, when the pH of the environment surrounding an enzyme is changed, the rate the enzyme catalyzes a reaction greatly decreases. Which statement best describes how a change in pH can affect an enzyme?

- (A) a pH change can cause the enzyme to change its shape.
- (B) a pH change can remove energy necessary to activate an enzyme.
- (C) a pH change can add new molecules to the structure of the enzyme.
- (D) a pH change can cause an enzyme to react with a different substrate.

